9:45

737-6 Increased QT Interval Dispersion Following Post-Dialytic Decrease of Potassium and Magnesium: A Model to Study the Repolarization Changes Associated to Electrolyte Abnormalities

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In patients with chronic renal disease requiring recurrent hemodialysis (HD), a marked decrease of serum K^+ and Mg^{+2} between the pre- and post-dialytic phases is observed, often associated with onset of cardiac arrhythmias. The effect of K^+ and Mg^{+2} gradients on ECG profile was studied in 20 consecutive HD patients (17 males, mean age 51 + 17 years), with the following exclusion criteria: 1) Coronary artery disease; 2) NYHA class >2 or ejection fraction <40%, 3) Ventricular hypertrophy; 4) LBBB or RBBB; 5) Atrial fibrillation. Serum concentrations (mEq/L) of K^+, Mg^{+2}, Na^+, Ca^{+2}, and Cl^- were monitored, and absolute QT duration (msec), corrected QT interval (QTc, msec), and two repolarization dispersion indexes: QTc max-min (msec) and dispersion coefficient (DC = QTc standard deviation/mean QTc × 100) were measured from 12-lead ECGs in pre- and post-dialytic phases.

	K^+	Mg^{+2}	QT	QTc	QTc max-min	DC
Pre-dialysis	5.2 ± 0.8	2.8 ± 0.6	352 ± 32	399 ± 26	53 ± 21	4.6 ± 1.5
Post-dialysis	3.5 ± 0.6	2.1 ± 0.4	374 ± 59	428 ± 38	89 ± 65	7.2 ± 4.9
p values	< 0.0001	< 0.0001	0.05	0.0005	0.01	0.01

Thus, the peridialytic K^+ and Mg^{+2} gradients induce a significant increase in QT duration and dispersion of ventricular repolarization, with major changes in T and U wave morphology. The association between serum electrolytes changes and abnormalities of ventricular repolarization might contribute to the understanding of the ionic basis involved in QT interval prolongation.

738 Acute Myocardial Infarction: Today's Practice and Tomorrow's Promises

Tuesday, March 18, 1997, 10:30 a.m.–Noon
Anaheim Marriott, North Hall

10:30

738-1 Early and Predischarge Aspirin Administration Among Patients With Suspected Acute Myocardial Infarction: Current Clinical Practice in the United States

M. Burns, R.C. Becker, J.M. Gore, C. Lambrew, W. French, W. Rogers, for the National Registry of Myocardial Infarction (NRMI-2) Investigators. *University of Massachusetts Medical School, Worcester, MA, USA*

Aspirin (ASA), a widely available, inexpensive, and well-tolerated platelet inhibitor, is recommended for patients with acute coronary syndromes, including myocardial infarction (MI). We determined early (<24 hours) and predischarge ASA administration among 220,171 patients with suspected MI. Recipients (n = 165,122) (74.9%) were younger, more often male, arrived at the hospital earlier, and were more likely to be Killip Class I or II ($p < 0.001$). Patients treated with thrombolytics (n = 67,584), PTCA (n = 14,395) and no reperfusion (n = 137,488) received ASA 90%, 82%, and 67% of the time, respectively. By logistic regression analysis independent predictors of early ASA use included ST segment elevation (OR 1.41; 1.17–1.69; $p = 0.0001$) and male sex (OR 1.28; 1.11–1.46; $p = 0.0001$). Prior MI (OR 0.74; 0.62–0.88; $p = 0.0001$), previous bypass grafting (OR 0.76; 0.61–0.95; $p = 0.02$) and not low-risk categorization were inversely associated with early ASA use. In-hospital recurrent MI (OR 0.94; 0.82–0.99; $p = 0.04$), stroke (OR 0.73; 0.67–0.88; $p = 0.0001$) and death (OR 0.24; 0.22–0.26; $p = 0.0001$) were significantly reduced among early ASA users. Nearly one-third of patients surviving their MI did not receive ASA at hospital discharge. We conclude that ASA is currently underutilized in routine clinical practice as a primary or adjunctive form of therapy in MI, especially among patients at risk for recurrent thrombotic events. ASA for secondary prevention may also be underutilized. National efforts to increase ASA use should improve the standard of care.

10:45

738-2 Cooperative Cardiovascular Project (CCP) – Underuse of Quality Indicators for Acute Myocardial Infarction in Medicare Patients in New York State

M. Malach, R.P. Nenner. *IPRO, Lake Success, NY, USA*

A national Cooperative Cardiovascular Project (CCP) under the direction of The Health Care Financing Administration (HCFA) assessed the care of hospitalized patients with acute myocardial infarctions (AMI) during an eight month period of 1994. Nationally there were 220,000 with 17,000 in New York (NY). As a result of chart abstractions, the data clearly suggest that there are significant opportunities for improvement in hospital based care.

AMI is a leading cause of death. The project was to demonstrate compliance with ten quality indicators for AMI, arrived at by an American College of Cardiology (ACC) Task Force with HCFA. Increased compliance would improve the outcome of AMI care especially in medicare patients. Three crucial quality indicators – aspirin, beta blockers and timely thrombolytics were used noticeably less in the older and the sicker patients. New York mortality for AMI of 16.2% (nationally 18.6%) can be explained by a median age of 75 and 48% anterior AMIs. The benefits of ACE inhibitors for low left ventricular ejection fraction and the non-use of calcium channel blockers was documented. Data for the 10 indicators will be presented.

IPRO has provided each of 205 hospitals with their data and peer and national comparisons and conducted regional meetings and teleconferences to review the reports and methods of increasing compliance with the ten quality indicators. Successful examples of quality improvement programs with protocols and care maps will be presented. Outcome improvement for AMI in medicare patients are expected on new reviews in succeeding months.

11:00

738-3 The Paradigm for Anti-Platelet Effect on Continuous 12-Lead ST-Segment Recovery in Acute MI

M.W. Krucoff, R.A. Harrington, D.J. Moliterno, C.L. Green, K.M. Trollinger, A. Kristinsson, C.D. Morgan, J. Burks, T. Nygaard, J.E. Pope, E.J. Topol, R.M. Califf. *Duke University Medical Center, Durham, NC, USA*

Parameters of continuous 12-lead ST-segment recovery correlate with angiographic patency, therapeutic drug effect and clinical outcomes. In the PARADIGM study the effects of the anti-platelet agent lamifiban (150–400 μg bolus, 1–2 μg/min infusion) randomized vs. placebo in pts with <6 hrs chest pain & ST elevation given tPA and ASA were assessed with continuous 12-lead ST-segment recovery analysis in 244 pts with analyzable data. ST parameters included presence of >50% ST recovery at 90 min (ST-PATENCY); time to ST recovery stable for >4 hrs (STABLE); total ST deviation curve area (AREA); and re-elevation >150 μV after STABLE (LATE ST). Results were, as % or median (25th, 75th % ile):

Parameter	Placebo	Lamifiban	P-value
# PTS	79	165	
90 Min ST-Patency	63%	80%	0.007
STABLE (min)	130 (45, 253)	89 (31, 149)	0.0039
AREA (uV-min)	8258 (1370, 13390)	4738 (0, 10123)	0.028
LATE ST	24%	12%	0.026

Thus, even with a fairly small sample size, the desirable effects of platelet inhibition with lamifiban are evident compared to placebo, with a 30–50% reduction in continuous ST parameters of reperfusion speed, stability, total infarct "burden" and recurrent ischemia.

11:15

738-4 Intravenous argatroban versus heparin as co-medication to alteplase in the treatment of acute myocardial infarction; preliminary results of the ARGAMI pilot study

F. Vermeer, A. Vahanian, P.W. Fels, P. Besse, D. Radzik, M.L. Simoons. *Academic Hospital Maastricht, University of Limburg, The Netherlands*

Intravenous argatroban (a new synthetic thrombin inhibitor derived from arginine) was compared to heparin as co-medication to alteplase in the treatment of patients with acute myocardial infarction in a 2:1 double blind, randomized trial using a double dummy technique. Argatroban was given as a bolus of 100 μg/kg prior to the start of thrombolytic therapy, followed by an infusion of 3 μg/kg/min. Heparin was given as a bolus of 5000 IU, followed by an infusion of 1000 IU/hour, titrated against (a)PTT. Alteplase was given according to the accelerated regimen as used in GUSTO. Acute coronary angiography was scheduled for all pts at 90 min after start of the infusion and after 5 to 10 days.